CLAIMS

1. An injector device for transcutaneously placing a hollow cannula of a subcutaneous infusion set through the skin of a patient, comprising:

a device housing,

a plunger slidably received within the device housing for movement between an advanced position and a retracted position, the plunger having an insertion needle secured thereto by a stable connection preventing loss of the insertion needle during use of the device, said insertion needle receiving and supporting the cannula of said subcutaneous infusion set in a position with the cannula oriented for transcutaneous placement upon movement of said plunger with said needle from the retracted position to the advanced position,

a drive for urging the plunger from the retracted position toward the advanced position to transcutaneously place said cannula of said subcutaneous infusion set received on said insertion needle, and

wherein the insertion needle secured to said plunger is removable from said cannula while maintaining the transcutaneous placement of the cannula.

2. The injector device of claim 1, wherein the device housing has a forward end defining a generally planar surface for placement against the skin of a patient with the device housing in a predetermined orientation relative to the patient's skin.

3. The injector device of claim 1, wherein a forward end of said insertion needle opposite said plunger is substantially retracted within the device housing when the plunger is in the retracted position.

4. The injector device of claim 1, wherein the infusion set comprises a tubing, said device housing including a space, preferably an annular space, for accommodating said tubing.

5. The injector device of any of claim 1, wherein the insertion needle is secured to said plunger by press-fit.

6. The injector device of claim 1, wherein the insertion needle is hollow and has an entry port and an exit port.

7. The injector device of claim 1, said cannula being soft and flexible.

8. The injector device of claim 1, wherein said drive comprises a number of individual, flexible plastics strips extending around a respective part of the periphery of the plunger, in a space between said plunger and said device housing, each strip being connected at one end with the plunger and with the device housing at the other end.

9. The injector device of claim 8, wherein said strips are integrally connected with said device housing.

10. The injector device of claim 8, each strip being essentially plane and non-deformed in the advanced position of the plunger.

11. The injector device of claim 10, two strips extending in a common plane around a respective part of said periphery of said plunger, and two further strips extending in a second plane around a respective part of said periphery, in said advanced position of said plunger.

12. The injector device of claim 8 or 10, wherein said strips and said plunger are molded as a unitary component, said unitary component being connected to said housing.

13. The injector device of claim 1, including a lock for releasably locking said plunger in said retracted position, said housing being manually deformable to effect release of said plunger.

14. The injector device of claim 1, further including a removable cover at a forward end of the device housing for covering an infusion set received and supported by said insertion needle, said cover including a hollow for receiving a part of said insertion needle when said plunger is in said advanced position.

15. The injector device according to the preceding claim, said cover being repositionable for covering said insertion needle subsequent to removal of said infusion set.

16. An injector device assembly, comprising:

an infusion set including a housing and a hollow cannula,

a device housing,

a plunger slidably received within the device housing for movement between an advanced position and a retracted position, the plunger having an insertion needle secured thereto by a stable connection preventing loss of the insertion needle during use of the device, said insertion needle extending through said cannula with the cannula oriented for transcutaneous placement upon movement of the plunger from the retracted position to the advanced position,

a spring for urging said plunger toward the advanced position, and

a trigger for releasably retaining the plunger in the retracted position, the trigger being operable to release the plunger for spring-loaded movement with a controlled force and speed toward the advanced position,

wherein the insertion needle secured to said plunger is removable from said cannula while maintaining the transcutaneous placement of the cannula.

17. The injector device assembly of claim 16, wherein said device housing includes a space, preferably an annular space, for accommodating a tubing that forms part of said infusion set for delivery of medication to said hollow cannula.

18. The injector device assembly of claim 16, wherein the device housing has a forward end defining a generally planar surface of placement against the skin of a patient with the device housing in a predetermined orientation relative to the patient's skin.

19. The injector device assembly of claim 16, said insertion needle being in frictional engagement with said infusion set.

20. The injector device assembly of claim 16, wherein a releasable cover member covers at least one end of the device housing for assuring sterile conditions of the infusion set prior to use of the injector device assembly, indicia relating to the shelf life of said assembly preferably on said cover.

21. The injector device assembly of claim 20, said plunger being in said advanced position prior to first time removal of said at least one cover member.

22. The injector device assembly of claim 16, wherein said spring comprises a number of individual, flexible plastics strips extending around a respective part of the periphery of the plunger, in a space between the plunger and the device housing, each strip being connected with the plunger and with the device housing.

23. The injector device assembly of claim 22, wherein the strips are integrally molded with said plunger and said device housing.

24. The injector device assembly of claim 22 or 23, each strip being essentially plane and non-deformed in the advanced position of the plunger.

25. The injector device assembly of claim 24, two strips extending in a common plane around a respective part of said periphery of said plunger, and two further strips extending in a second plane around a respective part of said periphery, in said advanced position of said plunger.

26. The injector device assembly of claim 16, wherein said strips and said plunger are molded as a unitary component, said unitary component being connected to said housing.

27. The injector device assembly of claim 16, wherein the insertion needle is secured to said plunger by press-fit.

28. The injector device assembly of claim 16, wherein the insertion needle is hollow and has an entry port and an exit port.

29. The injector device assembly of claim 16, wherein a removable cover covering said infusion set received on said insertion needle includes a hollow for receiving a part of said insertion needle when said plunger is in said advanced position.

30. The injector device assembly of claim 29, said cover being repositionable for covering said insertion needle subsequent to removal of said infusion set.

31. The injector device assembly of claim 16, said trigger releasing said plunger by manual deformation of said housing:

32. An injector device, comprising:

molded device housing,

a molded plunger slidably received within the device housing for movement between an advanced position and a retracted position,

a lock for releasably locking said plunger in said retracted position, said housing being manually deformabte to effect release of said plunger,

a drive for urging the plunger from the retracted position towards the advanced position,

wherein the drive comprises a number of individual flexible plastics members (136), each member being connected with the plunger and with the device housing.

33. The injector device of claim 32 wherein each flexible plastics member is formed as a strip, the device including at least two such strips, each strip extending around a respective part of the periphery of the plunger.

34. The injector device of claim 33, wherein each of said strips is connected with the plunger and with the device housing, said connections being at different peripheral locations around the plunger.

35. The injector device of claim 33 or 34, wherein each strip is essentially plane and non-deformed in the advanced position of the plunger.

36. The injector device of claim 33, wherein said strips and said plunger are molded as a unitary component, said unitary component being connected to said housing.

37. The injector device of claim 32, each of said flexible members extending in a space between the plunger and the device housing.

38. The injector device of any of claim 32, used for transcutaneously placing an insertion needle of a medical device through the skin of a patient.

39. The injector device according to claim 38, wherein said insertion needle is substantially non-detachably secured to said plunger.

40. The injector device of claim 38 or 39, wherein said insertion needle is hollow and has a lateral opening near said plunger.

41. The injector device of claim 32, including manual engagement areas for the manual deformation of said housing to effect said release of said plunger.

42. The injector device of claim 41, said manual engagement areas being diametrically opposed on said housing and being peripherally offset with respect to said lock, preferably by 90°, or about 90°.

43. The injector device of claim 42, said manual engagement areas being of fingertip size.

44. The injector device of claim 13, including manual engagement areas for the manual deformation of said housing to effect said release of said plunger.

45. The injector device of claim 44, said manual engagement areas being diametrically opposed on said housing and being peripherally offset with respect to said lock, preferably by 90°, or about 90°.

46. The injector device of claim 45, said manual engagement areas being of fingertip size.

47. The injector device of claim 31, including manual engagement areas for the manual deformation of said housing to effect said release of said plunger, said housing including a lock for retaining the plunger in said retracted position.

48. The injector device of claim 47, said manual engagement areas being diametrically opposed on said housing and being peripherally offset with respect to said lock, preferably by 90°, or about 90°.

49. The injector device of claim 48, said manual engagement areas being of fingertip size.